

CLAIMS

1. In enthalpy extractor system for hydrocarbon vapors as stored within an underground storage tank for use in conjunction with a fuel dispensing system, including an underground storage tank, vapor return line communicating with the underground storage tank to provide for return of vapors from the location of fuel dispensing, a vent pipe operatively associated with the underground storage tank to provide for venting of excessive vapors, a refrigeration unit operatively associated with the underground storage tank, such that any vapors returned and stored within the tank will be chilled by said refrigeration unit to condense the hydrocarbon vapors and thereby reduce the pressure of the vapors that are stored within said underground storage tank.
2. The enthalpy extractor system of claim 1 wherein the refrigeration unit is located within the vapor section of the underground storage tank.
3. The enthalpy extractor system of claim 1 wherein the refrigeration unit is located has an effect upon any vapors returning to the underground storage tank through the vapor return line.
4. The enthalpy extractor system of claim 1 wherein the refrigeration unit system operatively associated with the vent pipe to affect a chilling and condensation of any vapor located therein and within the vapor section of the underground storage tank.
5. The enthalpy extractor system of claim 1 and including a fuel dispenser operatively associated with the vapor return line, provide for dispensing of fuel from the underground storage tank and to effect return of vapors back to said underground storage tank, said refrigeration system being operatively associated with the fuel dispenser to provide for chilling of the vapors being returned to said underground storage tank.
6. The enthalpy extractor system of claim 1 and including a control unit operatively associated with the refrigeration unit and to provide for its initiation and shut-off of operations during performance of the system.

7. The enthalpy extractor system of claim 6, and including a pressure sensor, communicating with the vapor section of the underground storage tank, provide for a detection of the pressures within the vapor storage area to determine the level of vapor pressure.
8. The enthalpy extractor system of claim 7 and including a flow meter, operatively connected with the control unit, determine the quantity and capacity of vapors being returned to the underground storage tank.
9. The method of reducing pressure of hydrocarbon vapors within an enthalpy extractor system, including providing an underground storage tank in which fuel is stored, providing a dispenser for dispensing of fuel from the underground storage tank, providing a fuel flow line for conveyance of fuel from the underground storage tank to the dispenser, during dispensing, and then return collected fuel vapors back to the underground storage tank, providing a vent pipe upon the underground storage tank to vent excessive vapor pressure, and providing a refrigeration unit to kill and condense the fuel vapors within the underground storage tank to reduce their volumetric capacity.